



Residential Demolition, Vacant Lots and Green Infrastructure



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Residential Demolitions



Historic Challenge: Poor Demolition Practices

1. Place debris and contaminated soil in hole.
2. Clay soils with no organic matter.
3. Large rocks on surface. Not level.
4. Compacted soil - Bulldoze 100x
5. No grass seed or groundcover.
6. Send everything to the landfill – even if there is a market for reuse or recycling.
7. Leave driveway and foundation for next user



What Makes a Better Demolition?

Download the toolkit at: <http://1.usa.gov/15yzqyt>



3. Highlighted Demolition Modifications to Improve Environmental Results

One of the goals of developing the residential demolition bid specification development tools is to assist cities, counties, land banks and other organizations/entities in developing high quality, detailed contract language that will result in an environmentally demolition process. Integral to this process is providing adequate project field oversight in order to ensure that contractors are performing the work as specified, and yielding the benefits that these specifications are designed to produce. The following sections outline the recommendations, and best management practices that are included in the specification sections in the Appendix. Each city, county, land bank, or other entity will need to assess its own current practices, markets, and resources in order to determine which, if any, modifications will have the greatest impact and are most feasible. When the specifications reference demolition requirements, waste handling and disposal regulations, or worker protection measures U.S. EPA or the Occupational Safety and Health Administration (OSHA), those regulations must be met. All applicable statutory and regulatory requirements including environmental, workers' protection, and historical preservation requirements must be met.

A. Conduct Pre-Demolition Inspections to Identify Waste Streams

One of the first steps for the demolition of a vacant home is to identify characteristics, and quantify the potential waste streams at the site. This may help ensure accurate bidding and the handling of waste disposal. The **Pre-Demolition Survey** bid specification development tool provides a list of the potential waste streams that should be considered for the survey:



Typical household waste items found in homes can be anything but typical. This image of portable toilets removed from an older home illustrates how hazardous materials (hazardous in 1980) and Demolition (EDT was based in 1972). (Photo credit: Drew Graham, City of Chicago)

including asbestos-containing materials (ACM), lead-based paint (LBP), polychlorinated biphenyls (PCBs), mercury containing wastes (Hg), general household wastes, and other potential hazardous wastes. Another useful set of data to be compiled during the survey is an inventory of the items and materials that would be suitable for salvage and recycling. The Waste Management Plan specification tool offers guidance on developing a plan for procedures and methods to be used in the handling and disposal of the waste streams

See Appendix:
Pre-demolition Survey
Waste Management Plan

C. The inspection report must identify and quantify all waste streams identified during the pre-demolition survey.

SAVINGABLE AND RECYCLABLE ITEMS

- A. While conducting the pre-demolition survey the inspection personnel shall also identify and quantify any items that may be salvageable or recycled prior to demolition. Table 1 attached to this specification may be useful in creating the inventory of salvageable and recyclable items.
- B. To be eligible for salvage or recycling, items must be free of hazardous or special waste streams as identified in the preceding sections. Items must also be able to be removed without disturbing or releasing any adjacent hazardous materials; otherwise, adjacent hazardous materials must be removed properly and in accordance with federal, state, and local regulations prior to removal of the salvageable or recyclable items.
- C. The contractor should contact the local building material reuse store to determine whether the reuse store is able to accept older materials that have been coated with LBP. There may be state and local laws or regulations that address the management, handling, or sale of materials containing LBP.

D. Salvageable materials may include:

1. Doors.
2. Door frames.
3. Millwork.
4. Windows.
5. Window frames.
6. Porcelain fixtures.
7. Brick.
8. Wood flooring.
9. Cabinets.
10. Furniture.
11. Major appliances.
12. Hot water radiators.
13. Hardware.

Other appliances are often energy inefficient and may not be good candidates for reuse. For information on responsible appliance disposal go to <http://www.epa.gov/rdf/>

E. Recyclable materials may include:

1. Metals from steel frames.
2. Plumbing.
3. Wiring.
4. Wallboard.
5. Carpeting.
6. Roofing materials.
7. Wood.
8. Asphalt.
9. Concrete.
10. Appliances.
11. Certain special wastes, such as electronics or scrap tires.

For information on responsible appliance disposal go to <http://www.epa.gov/rdf/>

- F. The pre-demolition survey report should also identify what items are required to be removed for salvage or recycling prior to the demolition of the structure. This information will assist the contractor in developing the sequence of removal in the Waste Management Plan.

Residential Demolitions

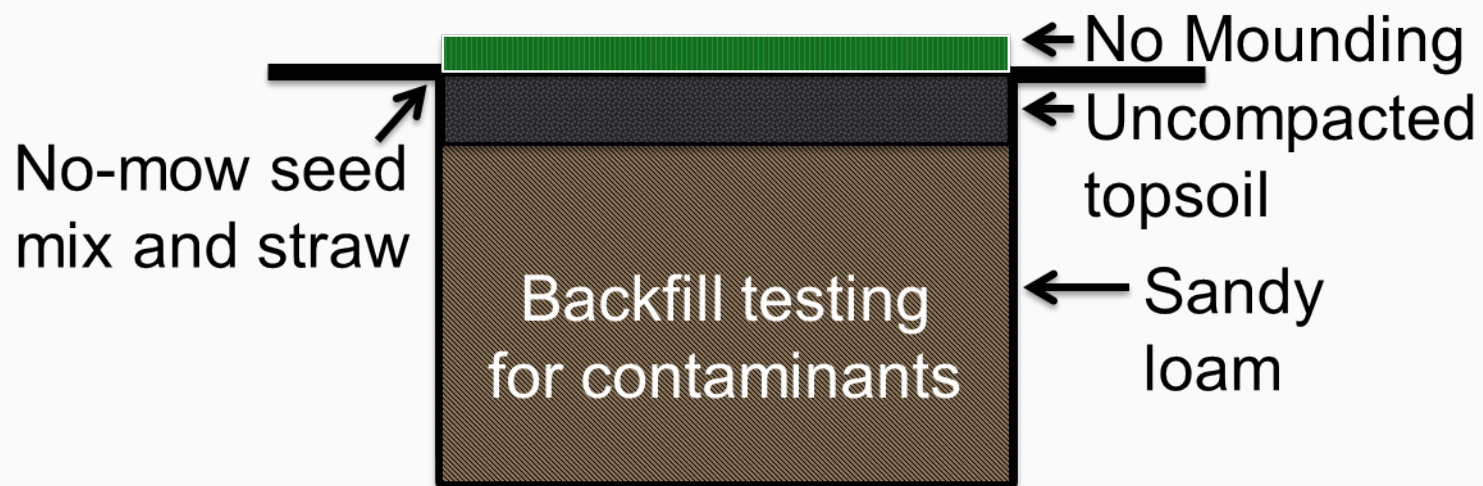


Waste Management Plan

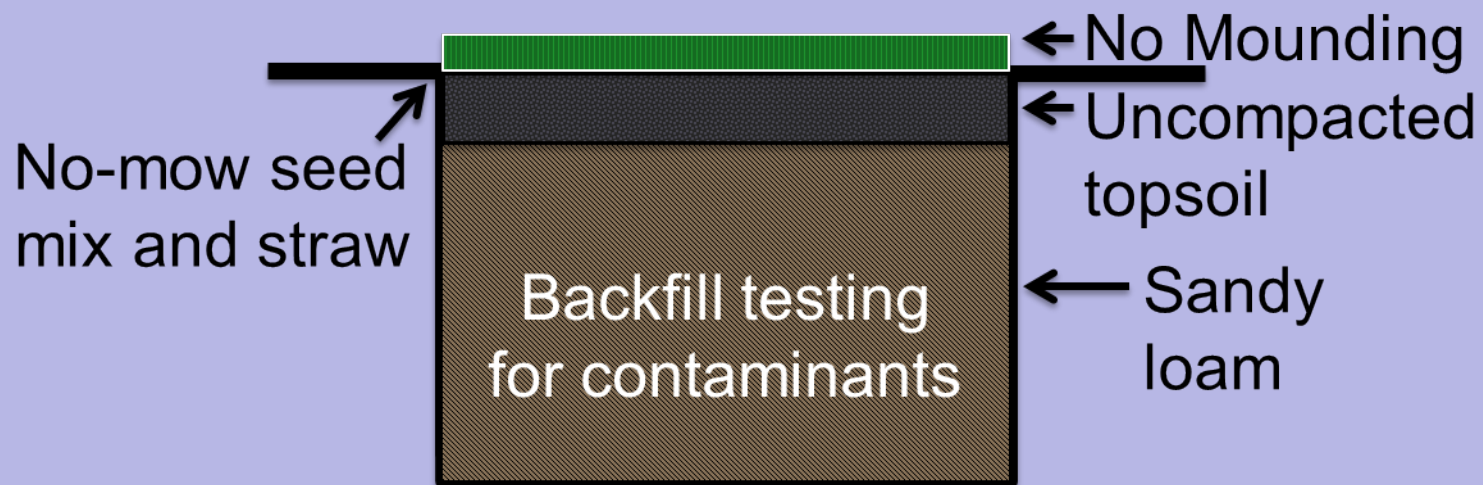
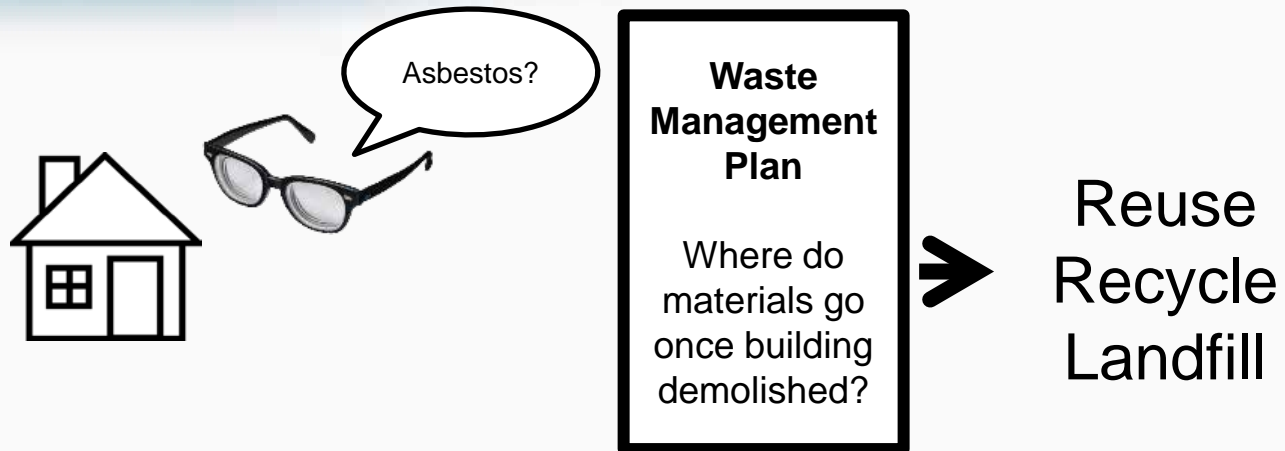
Where do materials go once building demolished?



Reuse
Recycle
Landfill



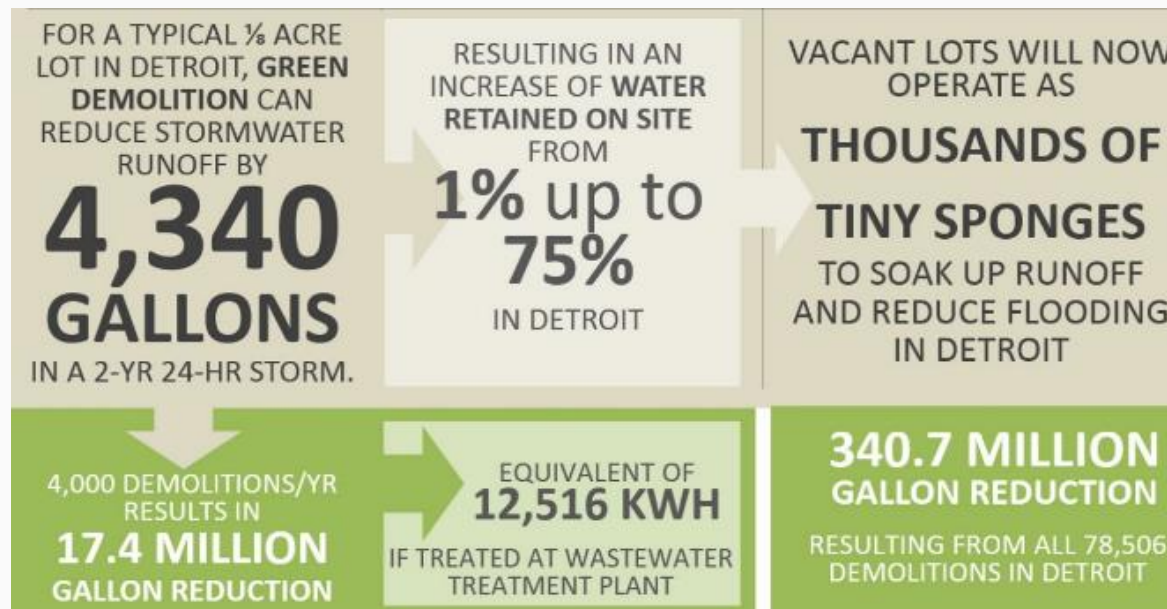
Residential Demolitions



Thousands of Sponges



Better Demolition Results:
*Now, every lot better protects public health and
is positioned for future reuse*



Adds co-benefits, such as better fugitive dust control, stormwater management, and sustainable materials management

Liabilities into Assets



- Goal:
Residential demolitions as
passive green infrastructure
to absorb rainfall and
prevent runoff



Where to find soil?

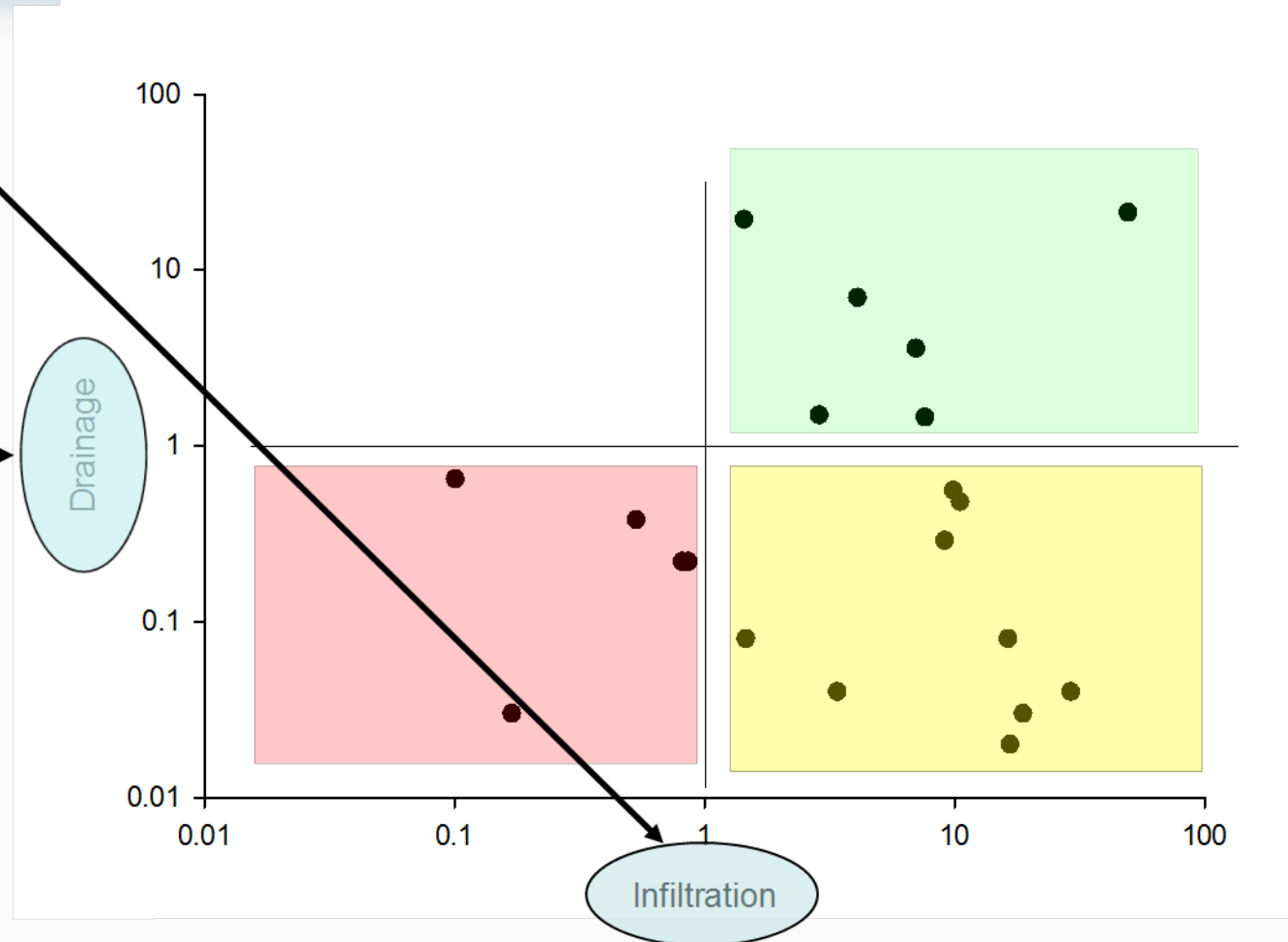
(for thousands of demolitions per year!)



Preliminary Sampling Results



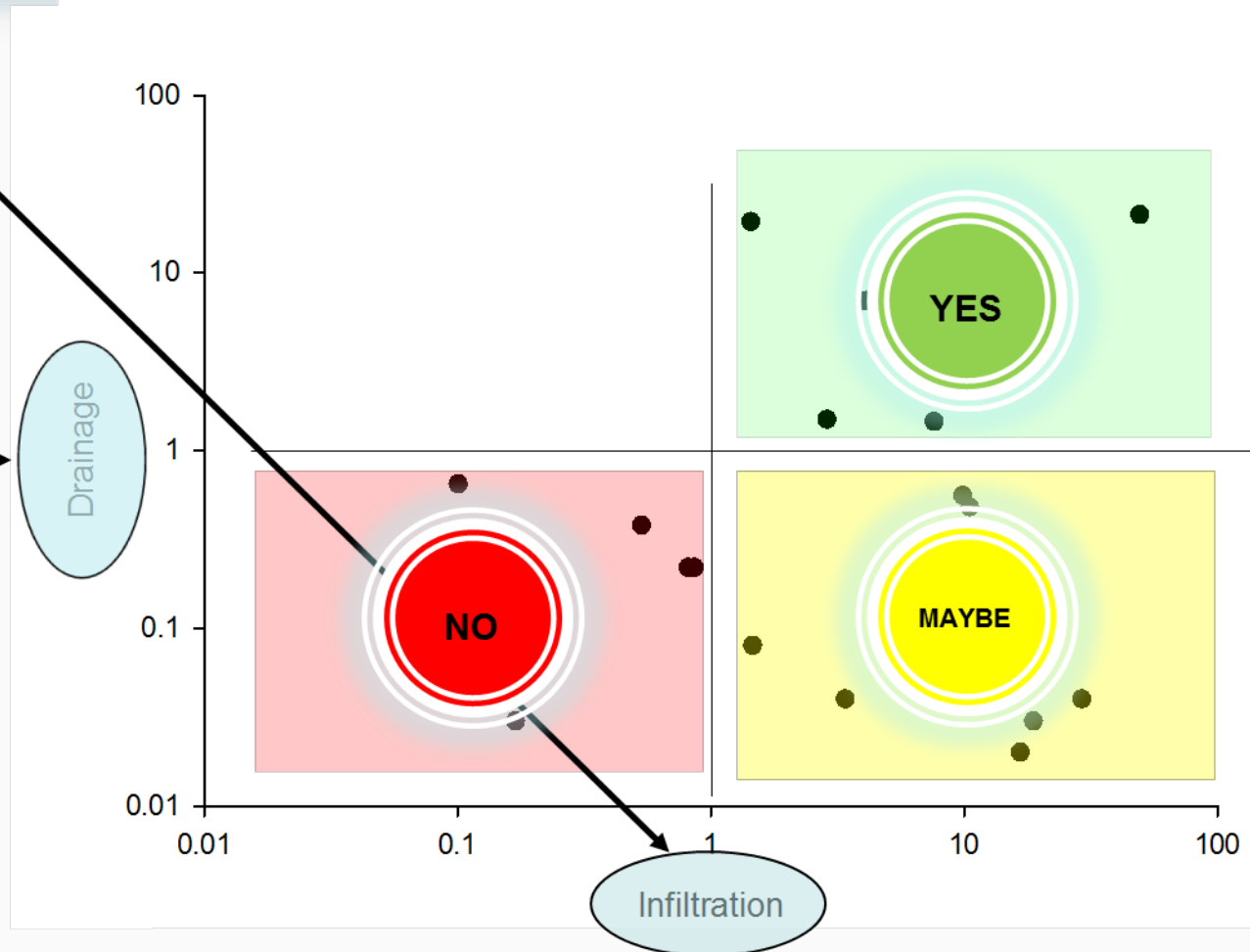
- Infiltration is the process of water moving from the surface into the soil
- Drainage is how water moves deeper and outwards through the soil
- 1 cm/hr is used as the threshold rate



Preliminary Sampling Results



- Infiltration is the process of water moving from the surface into the soil
- Drainage is how water moves deeper and outwards through the soil
- 1 cm/hr is used as the threshold rate



Detroit, East side, Findlay



Poorly-permeable, poorly-drained silty
clay loam

STOP! Red light



NO

Maine St.



Convex, though
we'd rather
have it flat or
slightly concave

Too much soil, uneven packing
Could save 3+ yards of material per lot
Caution! Yellow Light

MAYBE

Maine St. Vacant Lot – consequences of runoff production



We observed that the clogged outlets led to surface storage of stormwater runoff in roadways



Dwyer 3



GO! Green light

YES



Lessons Learned

Demolition practices matter!

Avoid:

1. Clay soils
2. Soil mounds
3. Poor vegetation, and erosion
4. Heavy compaction

Do demolition by design (bid specifications)
and observe (monitor)



Need to update your demolition practices? Check the Expiration Date

- Last bid specification update
- Old references to regulations or broken web links
- Reliance on phrases such as, "as directed by Land Bank Staff"
- Increase in change orders - \$\$\$
- Treating all materials as waste, not an asset
- Launching a BIG demolition effort
- Repeat complaints from community residents
 - Dust control or debris left on site
- Any of which may not put the site on the road to reuse!



HOW to green vacant lots?



Construction specifications, stormwater design,
job training, maintenance, and funding



GREENING VACANT LOTS: CURRENT PRACTICES

<http://nationalresourcenetwork.org/en/Documents/306223>



Cost + Impact

The average cost to clean and green a property is \$1,000-\$1,300. Biweekly cleaning and mowing during the growing season averages \$150 per property, per year.

Clean and Green properties are more attractive for development. About 850 properties have been redeveloped into new homes and businesses. Nearby properties have also increased in value significantly.

Research has determined that **every dollar spent on “cleaning and greening” generates an additional \$224 in housing wealth.**



PHS's Clean and Green lot treatment.



Vacant Lots and Gun Violence

- 2016 study by the University of Pennsylvania's Urban Health Lab showed that [fixing up vacant lots](#) reduced nearby gun violence by 5 percent, and putting functioning windows and doors in abandoned houses, instead of boarding them up, cut nearby gun violence by 39 percent.
- **The study also found that every dollar Philadelphia spends on fixing up vacant lots saves taxpayers \$26 in reduced costs from gun violence.**



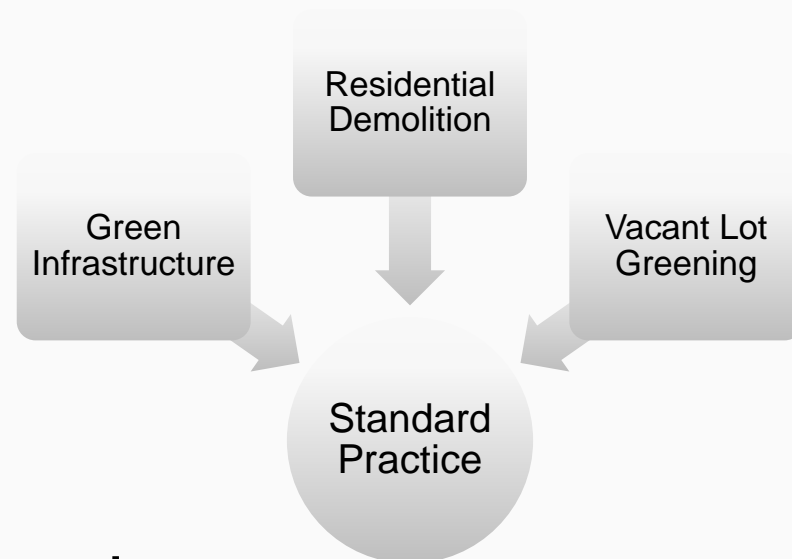


Take Home - Questions

Funding Collaboration

How to Address:

1. Clay soils
2. Soil mounds
3. Poor vegetation, and erosion
4. Heavy compaction





Questions?

